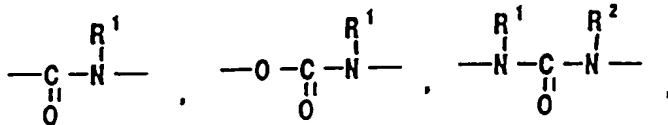


**Amendments to the Claims:**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

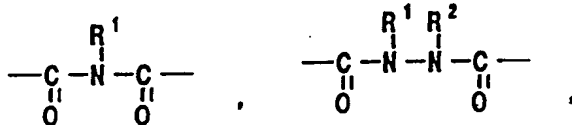
1. (Currently Amended) A liquid crystal alignment agent used in a method for alignment of liquid crystal molecules which that form the a liquid crystal alignment film comprising irradiating of a thin alignment film formed on a over the substrate where irradiation of with light or electron rays and aligning the liquid crystal molecules on the substrate without any rubbing treatment, and said liquid crystal alignment agent comprising of a polymer compound having bonds comprising a structure shown in selected from the group consisting of the general formula (1) – (7) below



(1)

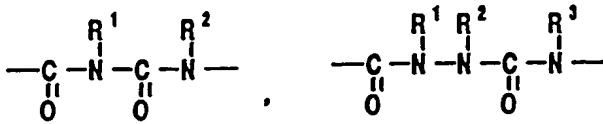
(2)

(3)



(4)

(5)



(6)

(7)

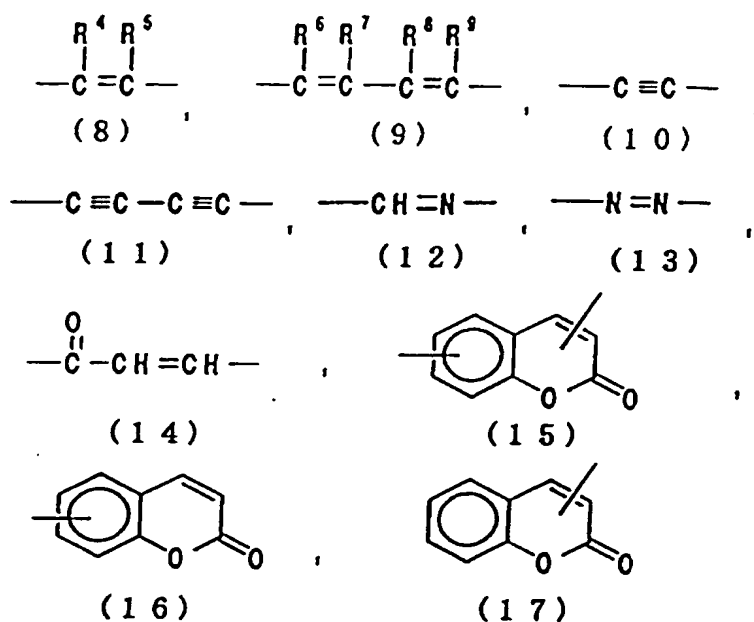
wherein,

\_\_\_\_\_  $\text{R}^1$ ,  $\text{R}^2$  and  $\text{R}^3$  are independently of each other hydrogen, alkyl, substituted alkyl, aryl or propargyl;

\_\_\_\_\_ in the polymer compound main chain of polymer compound with has a number-average molecular weight of 1,000 – 300,000<sub>2</sub>; and

~~\_\_\_\_\_ said bond structure makes the a~~ direct bond with either a divalent or trivalent aromatic group at the both ends of ~~said bond or with a~~ divalent or trivalent aromatic group making the ~~direct bond at one end of said bond while at the other forming the direct bond with and a~~ divalent or trivalent alicyclic hydrocarbon group at the other end.

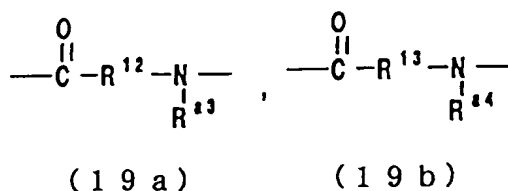
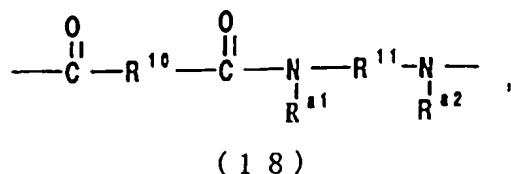
2. (Currently Amended) The Liquid crystal alignment agent according to Claim 1, wherein the main chain or a side chain of the polymer ~~having have~~ no functional groups shown in the general formula (8) – (17) below



wherein  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  and  $R^9$  are independently of each other hydrogen, halogen, alkyl, substituted alkyl, substituted alkoxy, carboxyl, alkoxycarbonyl or a cyano group as a substituent group ~~which that~~ may lead to a dimerization reaction or an isomerization reaction by the irradiation with light or electron rays.

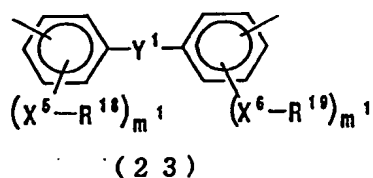
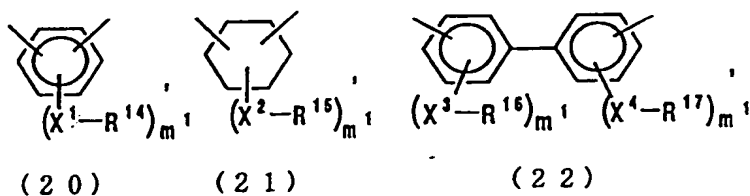
3. (Previously Amended) The Liquid crystal alignment agent according to Claim 1, wherein said polymer is polyamide.

4. (Currently Amended) The Liquid crystal alignment agent according to Claim 3, wherein said polymer compound is polyamide having the a repeating unit comprising of the a general formula (18) or of the a general formula (19a) and (19b) below



wherein,

\_\_\_\_\_R<sup>10</sup>, R<sup>11</sup>, R<sup>12</sup> and R<sup>13</sup> are divalent organic radicals in the general formula (20) – (23)



wherein,

\_\_\_\_\_X<sup>1</sup>, X<sup>2</sup>, X<sup>3</sup>, X<sup>4</sup>, X<sup>5</sup> and X<sup>6</sup> are independently of each other single bond, O, CO<sub>2</sub>, OCO, CH<sub>2</sub>O, NHCO or CONH;

\_\_\_\_\_R<sup>14</sup>, R<sup>15</sup>, R<sup>16</sup>, R<sup>17</sup>, R<sup>18</sup> and R<sup>19</sup> are independently of each other hydrogen, halogen, C<sub>1</sub>-C<sub>24</sub> alkyl, C<sub>1</sub>-C<sub>24</sub> alkyl containing fluorine, aryl, propargyl, phenyl or substituted phenyl;

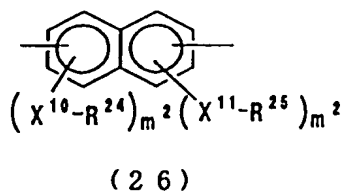
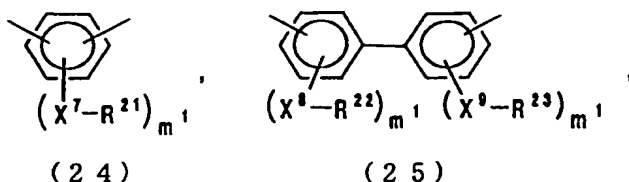
\_\_\_\_\_  $Y^1$  is O, S, CO, CO<sub>2</sub>, SO<sub>2</sub>, CH<sub>2</sub>, NH, NHCO,  $Y^2$ -Ar<sup>1</sup>-Y<sup>3</sup>,  $Y^4$ -(CH<sub>2</sub>)<sup>n<sup>1</sup></sup>-Y<sup>5</sup> or  $Y^6$ -Ar<sup>2</sup>-R<sup>20</sup>-Ar<sup>3</sup>-Y<sup>7</sup>;

\_\_\_\_\_  $Y^2$ ,  $Y^3$ ,  $Y^4$ ,  $Y^5$ ,  $Y^6$  and  $Y^7$  are independently of each other O, S, CO, CO<sub>2</sub>, SO<sub>2</sub>, CH<sub>2</sub>, NH or NHCO;

\_\_\_\_\_  $n^1$  is an integer of 1-10;

\_\_\_\_\_ R<sup>20</sup> is C<sub>1</sub>-C<sub>5</sub> straight or branched lower alkylene, fluoroalkylene or alkylenedioxy;  
and further-

\_\_\_\_\_ Ar<sup>1</sup>, Ar<sup>2</sup> and Ar<sup>3</sup> are independently of each other divalent organic radical in general formula (24), (25) or (26) below



wherein,

\_\_\_\_\_  $X^7$ ,  $X^8$ ,  $X^9$ ,  $X^{10}$  and  $X^{11}$  are independently of each other single bond, O, CO<sub>2</sub>, OCO, CH<sub>2</sub>O, NHCO or CONH;

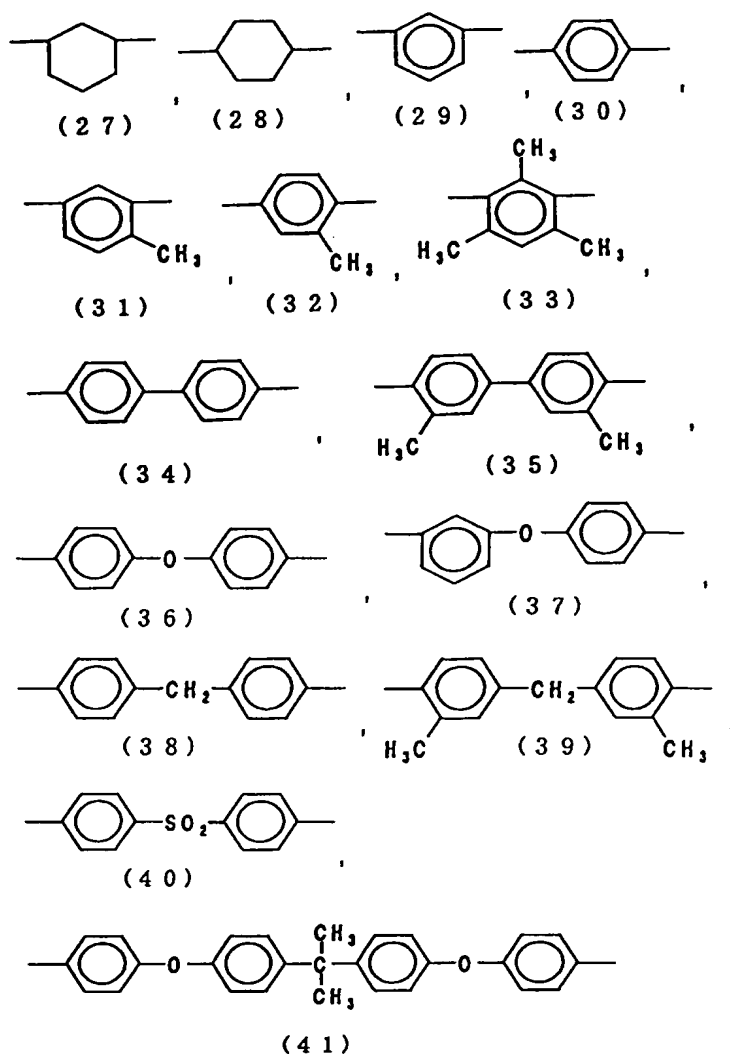
\_\_\_\_\_  $R^{21}$ ,  $R^{22}$ ,  $R^{23}$ ,  $R^{24}$  and  $R^{25}$  are independently of each other hydrogen, halogen, C<sub>1</sub>-C<sub>24</sub> alkyl, C<sub>1</sub>-C<sub>24</sub> alkyl containing fluorine, aryl, propargyl, phenyl or substituted phenyl;

\_\_\_\_\_  $m^1$  is an integer of 1 - 4; and  $m^2$  is an integer of 1 - 3;

\_\_\_\_\_ with the proviso that when  $R^{14}$ ,  $R^{15}$ ,  $R^{16}$ ,  $R^{17}$ ,  $R^{18}$ ,  $R^{19}$ ,  $R^{21}$ ,  $R^{22}$ ,  $R^{23}$ ,  $R^{24}$  and  $R^{25}$  are either hydrogen or halogen, then  $X^1$ ,  $X^2$ ,  $X^3$ ,  $X^4$ ,  $X^5$ ,  $X^6$ ,  $X^7$ ,  $X^8$ ,  $X^9$ ,  $X^{10}$  and  $X^{11}$  are single bond; and

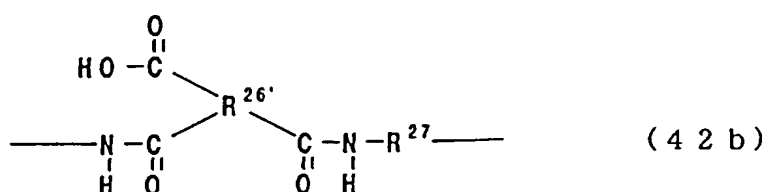
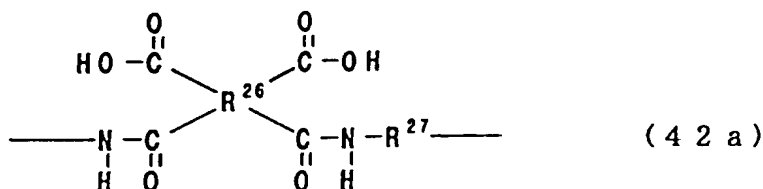
\_\_\_\_  $R^{a1}$ ,  $R^{a2}$ ,  $R^{a3}$  and  $R^{a4}$  are independently of each other hydrogen, alkyl, substituted alkyl, aryl or propargyl.

5. (Previously Amended) A Liquid crystal alignment agent according to Claim 34, wherein  $R^{10}$  or  $R^{11}$  in the general formula (18) above or  $R^{12}$  and  $R^{13}$  in the general formula (19a) and (19b) are independently of each other a radical selected from the formula (27) – (41) below



6. (Previously Amended) A Liquid crystal alignment agent according to Claim 1, wherein said polymer compound is a polyimide precursor or a polyimide obtained by chemical or heat imidization of said polyimide precursor.

7. (Currently Amended) A Liquid crystal alignment agent according to Claim 6, wherein said polymer compound is a polyimide precursor or polyimide obtained by chemical or heat imidization of said polyimide precursor, with the repeating unit comprising of the general formula (42a) and (42b) below



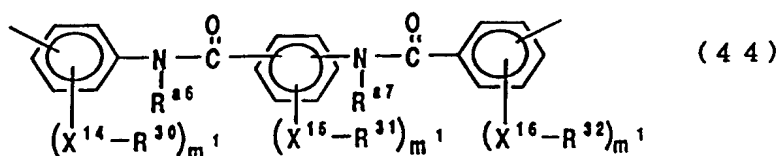
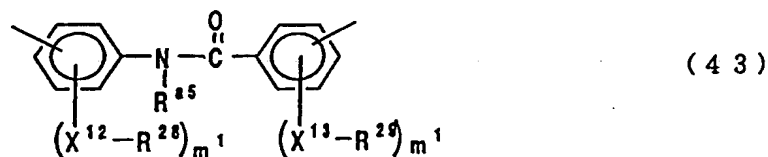
wherein,

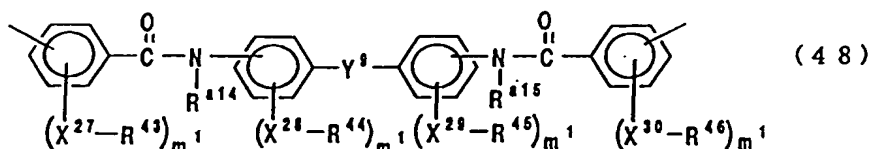
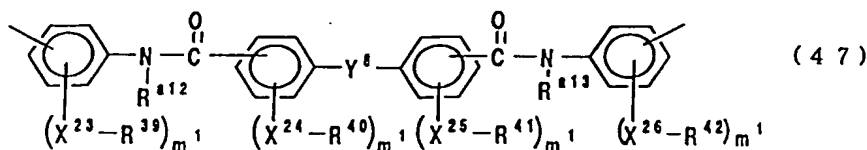
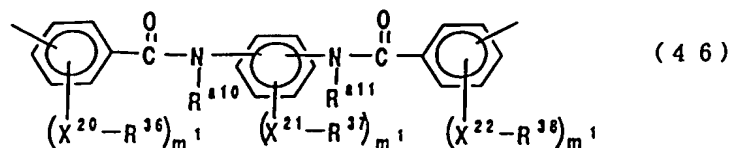
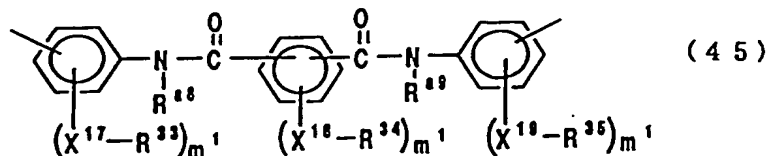
\_\_\_\_\_R<sup>26</sup> is a tetravalent organic radical;

\_\_\_\_\_R<sup>26'</sup> is a trivalent organic radical; and

\_\_\_\_\_R<sup>27</sup> is a divalent organic radical containing an amide radical bonded with a divalent or trivalent aromatic or alicyclic hydrocarbon group.

8. (Previously Amended) A Liquid crystal alignment agent according to Claim 67, wherein R<sup>27</sup> in the general formula (42a) and (42b) above is selected from the general formula (43) – (48) below





wherein,

\_\_\_\_\_  $X^{12} - X^{30}$  are independently of each other single bond, O, CO<sub>2</sub>, OCO or CH<sub>2</sub>O;

\_\_\_\_\_  $R^{28} - R^{46}$  are independently of each other hydrogen, halogen, C<sub>1</sub>-C<sub>24</sub> alkyl, C<sub>1</sub>-C<sub>24</sub> alkyl containing fluorine, aryl, propargyl, phenyl or substituted phenyl;

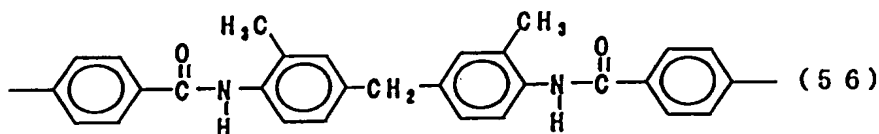
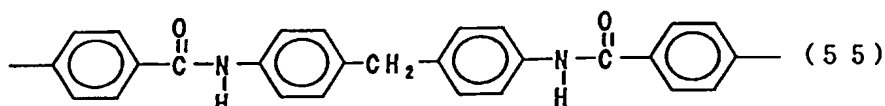
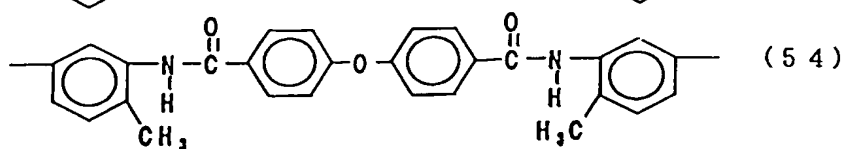
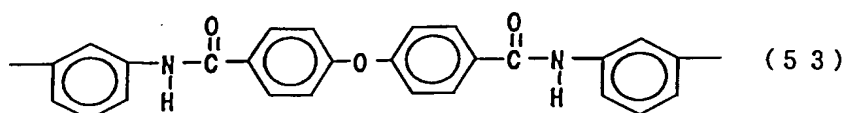
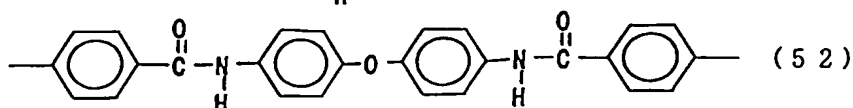
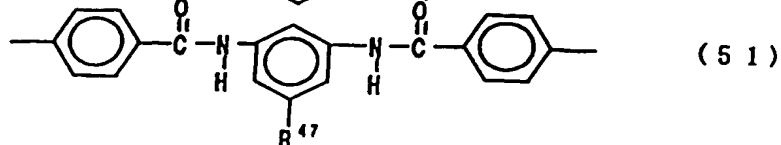
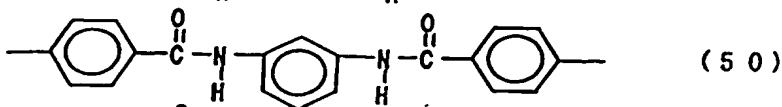
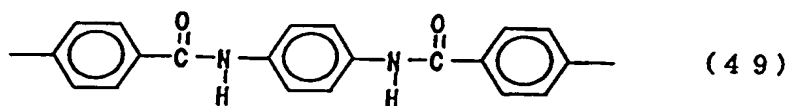
\_\_\_\_\_  $R^{a5} - R^{a15}$  are independently of each other hydrogen, alkyl, substituted alkyl, aryl or propargyl;

\_\_\_\_\_  $Y^8$  and  $Y^9$  are O, S, SO<sub>2</sub>, CH<sub>2</sub>, NH, NHCO or CONH;

\_\_\_\_\_  $m^1$  is an integer of 1 - 4;

with the proviso that when  $R^{28} - R^{46}$  are hydrogen or halogen, then  $X^{12} - X^{30}$  are single bond.

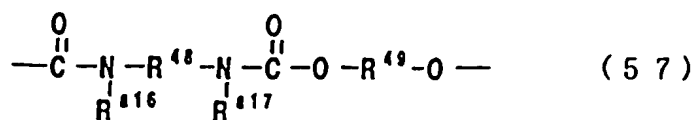
9. (Previously Amended) A Liquid crystal alignment agent according to Claim 67, wherein the radical for  $R^{27}$  in the general formula (42a) and (42b) above is selected from the formula (49) - (56) below



wherein,  $\text{R}^{47}$  is halogen,  $\text{C}_1\text{-C}_{24}$  alkyl,  $\text{C}_1\text{-C}_{24}$  alkoxy or  $\text{C}_1\text{-C}_{24}$  alkoxy carbonyl.

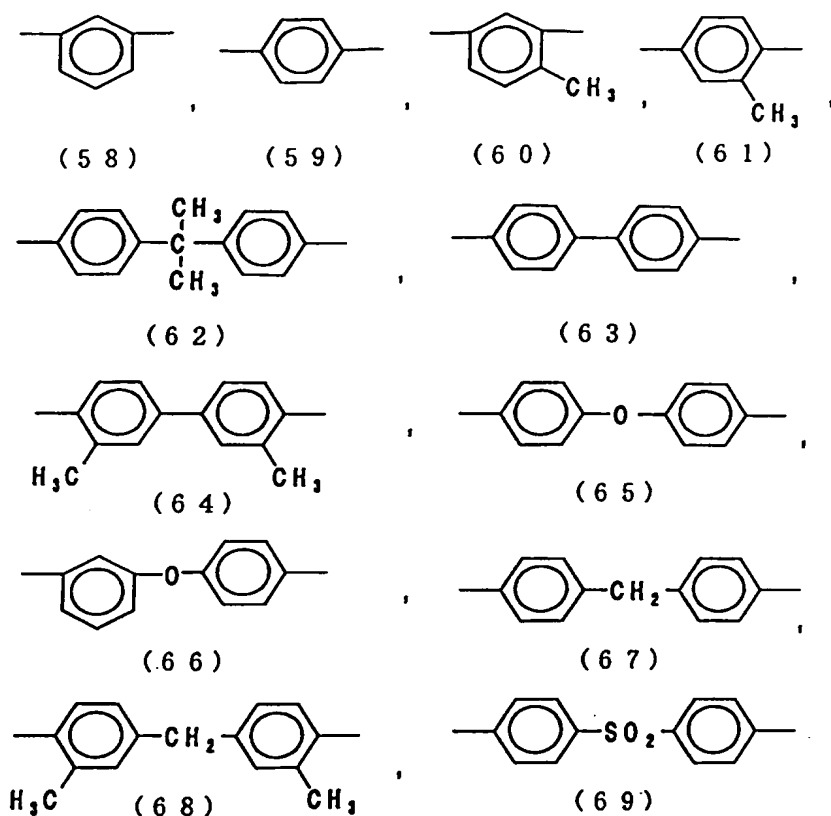
10. (Previously Amended) A liquid crystal alignment agent according to Claim 1, wherein said polymer compound is polyurethane.

11. (Currently Amended) A liquid crystal alignment agent according to Claim 10, wherein said polymer compound is polyurethane having the a repeating unit comprising of the general formula (57) below



wherein,  $\text{R}^{48}$  and  $\text{R}^{49}$  are independently of each other selected from the radicals shown in the formula (58) - (69) below

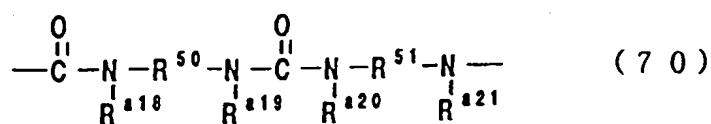




wherein,  $R^{a16}$  and  $R^{a17}$  are independently of each other hydrogen, alkyl, substituted alkyl, aryl or propargyl.

12. (Previously Amended) A liquid crystal alignment agent according to Claim 1, wherein said polymer compound is polyurea.

13. (Currently Amended) A liquid crystal alignment agent according to Claim 12, wherein said polymer compound is polyurea having the a repeating unit of the general formula (70) below



wherein,

\_\_\_\_\_  $R^{50}$  and  $R^{51}$  are independently of each other selected from formula (58) - (69) above;

and

\_\_\_\_\_R<sup>a18</sup> - R<sup>a21</sup> are independently of each other hydrogen alkyl, substituted alkyl, aryl or propargyl.

14. (Previously Amended) ~~A liquid crystal device by the use of~~ using the liquid crystal alignment agent according to Claim 1.

15. (Previously Amended) ~~A liquid crystal Aalignment method of liquid crystals~~ characterized by the use of the liquid crystal alignment agent according to Claim 1, wherein light or electron rays ~~being~~ are irradiated over ~~the~~ a thin polymer film formed on ~~the~~ a surface of ~~the~~ a substrate, and achieving liquid crystal alignment without rubbing action.